

# Notice of Allowability

Application No.

10/757,934

Applicant(s)

VARMA ET AL.

Examiner

Leon Flores

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/20/2007.
2. ☒ The allowed claim(s) is/are 4,6,7,9,13,15 and 16.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
DAVID C. PAYNE  
SUPERVISORY PATENT EXAMINER

## DETAILED ACTION

### ***Allowable Subject Matter***

1. Claims 4, 6-7, 9, 13, 15-16 allowed.
2. The following is an examiner's statement of reasons for allowance:

The art of record does not suggest the respective claim combination together and nor would the respective claim combinations be obvious with:

Re claim 6, the further limitation of *"a data-aided method of tracking the timing offset between a transmitted signal having a training sequence and a received signal using a pre-estimated timing offset, the method comprising the steps of: a. obtaining a corrected received signal using the received signal and the pre-estimated timing offset; b. obtaining a first estimate of the deviation in the pre-estimated timing offset out of a plurality of probable deviations by performing the steps of: i. de-convolving the corrected received signal shifted through the first probable deviation with the training sequence to obtain an estimated channel transfer function; ii. filtering the training sequence through the estimated transfer function to obtain an expected signal corresponding to the first probable deviation; iii. calculating an error factor between the expected signal and the corrected received signal shifted through the first probable deviation; performing steps i - iii for each probable deviation; and iv. identifying the probable deviation yielding the optimum value of error factor as the first estimate of the deviation; and c. obtaining an improved estimate of the deviation using the corrected received signal and the first estimate of the deviation"*. Claims 4, 7, and 9 depend on claim 6 above.

Re claim 15, the further limitation of *"a system for data-aided tracking of the timing offset between a transmitted signal having a training sequence and a received signal using a pre-estimated timing offset, the system comprising: a pre-corrector obtaining a corrected received signal using the received signal and the pre-estimated timing offset; a coarse estimator obtaining a first estimate of the deviation in the pre-estimated timing offset out of a plurality of probable deviations, the coarse estimator comprising: i. de-convolving block de-convolving the corrected received signal shifted through a probable deviation with the training sequence to obtain an estimated channel transfer function corresponding to the probable deviation; ii. a channel filter filtering the training sequence through the estimated channel transfer function to obtain an expected signal corresponding to the probable deviation; iii. an error calculator calculating an error factor between the expected signal corresponding to a probable deviation and the corrected received signal shifted through the probable deviation; and iv. a deviation selector identifying the probable deviation yielding the optimum value of error factor as the first estimate of the deviation; and a refiner obtaining an improved estimate of the deviation using the corrected received signal and the first estimate of the deviation"*.

Claims 13 and 16 depend on claim 15 above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

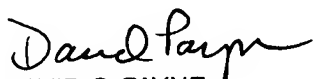
**Contact**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Flores whose telephone number is 571-270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LF  
August 30, 2007

  
DAVID C. PAYNE  
SUPERVISORY PATENT EXAMINER